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ABSTRACT

Using data from 1974 to 1977 National Opinion Research Center Surveys, the investigator examined differentials in income between currently employed white men and women aged 25 to 64 (sample size: 965 men and 672 women). Special attention was given to explanatory effects of occupational characteristics other than those traditionally used in the prestige or status-defined model. The results, based on a multivariate regression analysis and a regression standardization procedure, suggest that a significant part of the income gap between men and women is because of the concentration of women in a few occupations which are typically low paying and heavily female and which do not allow their incumbents the opportunity to exercise authority or to control the means of production. Incorporating these factors into a model of earnings hypothetically increased women's earnings as a percentage of men by approximately seven percent, to approximately sixty-three percent. A similar hypothetical improvement was found when just single women's earnings were adjusted to take account of their concentration in low level employment. The addition of occupational characteristics to the income attainment model thus complemented the human capital approach to the male-female earnings differential and improved on the prestige or status-defined model traditionally employed. The findings suggest that male and female workers face a segregated labor market which adversely affects women's earnings relative to men's. (Author/LMS)

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Sexual Stratification in the Workplace: Male-Female Differences in Economic Returns to Occupation*

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ABSTRACT

Employing data from the 1974-1977 NORC General Social Surveys, I investigate differentials in income attainment between currently employed white men and women age 25 to 64. Special attention is focused on the explanatory effects of occupational characteristics other than those traditionally employed in the usual prestige or status-defined earnings model. The results, based on a multivariate regression analysis and a regression standardization procedure, suggest that a significant part of the income gap between men and women is due to the concentration of women in a few occupations which are typically low-paying, heavily female and which do not allow their incumbents the same opportunity to exercise authority or control the means of production. Incorporating these factors in a model of earnings statistically increases women's earnings as a percentage of men's by approximately seven percent. A similar improvement occurs when just single women's earnings are adjusted to take account of their concentration in low-level employment, providing evidence that job characteristics are not merely proxies for work experience. The addition of occupational characteristics to the income attainment model thus complements the human capital approach to the male-female earnings differential and improves upon the prestige or status-defined model traditionally employed. These findings suggest that male and female workers face a sex-segregated labor market which adversely affects women's earnings relative to men's.

Sexual Stratification in the Workplace: Male-Female Differences in Economic Returns to Occupation

The literature on sex differences in earnings, a current interest of both sociologists and economists, is important because it calls attention to the existence of gender-based inequalities in control over resources and power in the marketplace. Earned income, for most of the population, is determined primarily by an individual's position in the occupational structure. Given sex differences in income of the magnitude recently reported, where women's adjusted earnings range from one-half to two-thirds those of men (Cohen, 1971; Suter and Miller, 1972; Treiman and Terrell, 1975a; McLaughlin, 1975), one might expect these to be based in gender differences in occupational distribution. However, recent work (Treiman and Terrell, 1975a; McClendon, 1976; Featherman and Hauser, 1976) suggests that even though there are significant sex differences in occupational distribution (see also Oppenheimer, 1968; Treiman and Terrell, 1975b), males and females attain equivalent levels of occupational prestige and status. Men and women do not, however, earn equivalent salaries, suggesting that similar levels of status attainment hide real differences in income between the sexes, which may well reflect the kinds of work men and women do. Evidence of the male-female income gap exists in the lower female income return to occupation in both prestige and status-defined models of income attainment but the sex-segregated nature of the labor market remains implicit and its impact unassessed. What has remained implicit needs to be made explicit—specifically, what are the mechanisms which explain the lower economic return to occupation for women relative to men. Such is the task of the present analysis.

Another limitation of much of the current literature on sex differences in earnings is that it has generally followed in the human capital tradition popular

in economics and thus concerns itself with the supply side of the market. The differential in earnings between the sexes is explained by reference to characteristics of women, specifically their lower stock of human capital, which place them in an inferior wage-bargaining position relative to men. Emphasis is on productivity differences thought to arise, for example, from the female's lesser seniority and/or the intermittency of her labor force experience relative to her male counterpart in the workplace (Suter and Miller, 1972; Mincer and Polachek, 1974; Polachek, 1975). Certainly this approach is central to an analysis of sex differences in earnings; however, its problem is that it assumes that men and women have equivalent access to occupational opportunities and says little about constraints, both institutional and societal, on that access.

An institutional approach which focuses on the characteristics of the occupational structure in which men and women work would complement the human capital analysis described above and allow the delineation of structural factors which may inhibit women's economic advancement. In the present analysis I measure and assess the impact of several structural determinants of income attainment. Specifically, I focus on the influence of job characteristics on achieved income, net of the impact of the usual human capital variables. By concentrating on the nature of the occupations in which women work, and how this differs from the character of men's employment, I can address the limitations in the recent literature comparing the income attainment processes of men and women. A focus on job characteristics can direct attention to additional factors, beyond the usual human capital variables, which may increase our understanding of why women continually earn less than men. Moreover, investigating the nature of women's jobs versus men's employment permits the abstraction of other, perhaps more income-relevant, dimensions of occupations than the traditional prestige or status.

A review of recent work in the field suggests some factors relevant to the proposed analysis. My focus is on income-relevant dimensions of occupations, or characteristics of the different labor markets in which men and women are employed. Support for the notion that structural factors may play an important role in the status attainment process has been increasing in recent years (McLaughlin, 1975; Lucas, 1977; Wolf and Rosenfeld, 1978). Wolf and Rosenfeld describe the sex-segregated nature of the labor market and the process whereby women are relegated to a small number of occupations, characterized by ease of entry and lack of opportunity for upward status mobility. They suggest that taking into account such characteristics of the labor market can help to explain why women's occupational status, for example, is apparently unresponsive to length of work experience. Although they are concerned specifically with status mobility, the relevance of their argument for income attainment is evident.

McLaughlin (1975) also recognizes the potential importance of the sex-segregated occupational structure for investigating earnings differentials. He views the earnings structure of an occupation as far too complex to be adequately represented by "prestige" (operationalized by Duncan SEI scores). Accordingly, he suggests that variables which more precisely measure a particular job's content should be incorporated into an earnings model. McLaughlin broadens his definition of occupation to include job characteristics from the Dictionary of Occupational Titles (hereafter referred to as DOT). Lucas (1977) also employs the DOT characteristics in his investigation of wage determination. He hypothesizes that occupations characterized by higher levels of supervisory skills, longer periods of vocational training, and a higher level of education should theoretically pay more than jobs not requiring such skills.

The crucial finding that a review of such work reveals is that women, because of their concentration in a few occupations, experience a quite different employment

situation than men. The character of the jobs in which they are employed is very different from the nature of men's employment. Incorporating occupational characteristics into an earnings model is one way to assess the impact of the sex-segregated labor market on male and female earnings. In the present analysis, I focus on four structural factors, or characteristics of occupations, which can improve our understanding of why women earn less than men.[1] First, one of the more salient characteristics of the few occupations in which women work is that these jobs are low-paying—for both men and women. Oppenheimer (1968) and Treiman and Terrell (1975b) note that women tend to be in jobs in which they are underpaid relative to their achieved education. Low-pay employment does not necessarily mean low-skill. The unique feature of some of the occupations in which women work is that they require a high level of skill but are low-paying, the necessary skills being those such as education which can be obtained before employment (Oppenheimer, 1968).

Second, the occupations in which women work are heavily female—that is, rather than men and women on the average doing similar work, women are highly concentrated in a few jobs. Fuchs (1971) and Treiman and Terrell (1975b) note the striking negative association between earnings and percent female in an occupation.

Third, working women, relative to men, characteristically have less control over the means of production. Robinson and Kelley (1978) report that women are half as likely as men to be employers and when they are their firms are likely to be smaller and perhaps less profitable than men's.

Finally, women are less likely than men to exercise authority over others. Wolf and Fligstein (1977) note that women are less likely than men to be in authority positions. Robinson and Kelley (1978, p. 13) add that the authority positions that women do hold are apparently less important than those held by men, in two senses. First, because of their differential occupational concentration, male supervisors are likely to be managers and administrators while women

who supervise are more likely to be employed in clerical occupations. Second, women are less likely than men to hold higher-level authority positions.

DATA AND METHODS

Data

The data employed in this analysis derive from the National Opinion Research Center's merged 1972 to 1977 General Social Surveys. The analysis was actually performed on respondents from the 1974 1976, and 1977 surveys since certain of the crucial variables for the present study were not available for all six years. The target population for the surveys was the total non-institutionalized English-speaking population, 18 years of age and older, of the continental United States. To ensure comparability, I further restricted the sample to currently employed (full-time, part-time, or temporarily not at work) white men and women, age 25 to 64, resulting in a working sample size of 965 men and 672 women.[2] Since I am concerned specifically with the determinants of earnings, it makes little sense to include those who are not currently employed.[3] The race restriction is important given the differing processes of income attainment experienced by blacks (Treiman and Terrell, 1975a, p. 196), while the age limitation is an attempt to select the most financially stable portion of the population.

Measurement of variables

Basic model. Age, measured in years, is particularly important in comparing the incomes of men and women, especially when, as in the present data, there is no experience variable. The male age-earnings curve is an inverted u-shaped function, representing an increase in income as men mature with a slight drop-off at the older years as they approach retirement. The female age-earnings curve is generally lower and flatter due specifically to their intermittent labor force attachment (Polachek, 1975, p. 103). Education, as an estimate of the

amount of acquired human capital, is measured by the number of years of school completed. Hours worked per week is also a particularly important variable in any earnings model comparing men and women because of women's greater likelihood of working part-time. This is simply the number of hours worked during the reference week (or the number of hours usually worked if temporarily not at work). Selected family composition variables are included because of their presumed impact on women's earnings. Marital status, which Treiman and Terrell (1975a) found to be an important distinguishing characteristic for women, is operationalized as a dummy variable, with ever married persons coded zero and never married one. In order to assess the impact of children on earnings, I included measures of the total number of children born alive, number of children less than six present in the household, and number of children between six and seventeen in the home. The income variable represents annual job earnings for the preceding year (before taxes). This was recoded into dollars by assigning the midpoint of the category.[4]

Job Characteristics. Since my task is to estimate the additional explanatory power of occupational characteristics beyond the traditional prestige and status-defined models of income attainment, I measure prestige and status in standard ways. Status is operationalized with Duncan's SEI index, updated for use with 1970 U.S. Census occupation codes (Featherman, Sobel, and Dickens, 1975). The prestige scale employed is that derived recently by Treiman (1977, Chs. 8-9) and used in Treiman and Terrell (1975a).

As I mentioned earlier, I am particularly interested in the explanatory effects of four additional measures of job characteristics. As a measure of the concentration in low-paying employment, I created a new variable which represents the median income of the specific occupation in which the individual is employed. This score is based on the median income of each of more than four hundred detailed

occupations in the 1970 U.S. Census, for a national sample of men, sixteen years of age and older, in the experienced civilian labor force (U.S. Bureau of the Census, 1973, pp. 1-11). To obtain valid estimates of the differences in the rates of return to occupational investment for men and women, identical occupation scales must be used for both sexes. Adjusting the occupational scale to take account of the fact that women's occupation does not reap the economic reward it should would obfuscate the important differences in income returns to occupation (Featherman and Hauser, 1976, p. 465). Thus, including a median income variable in a regression model of income attainment allows one to assess the effect of women's concentration in jobs which pay men less.

To operationalize the concentration in "women's employment," I scored each of the detailed occupations in the 1970 U.S. Census by the percent female employed in that occupation. This was derived from a national sample of workers in the experienced civilian labor force, sixteen years of age or older (U.S. Bureau of the Census, 1973, pp. 1-11).

Control over the means of production and the exercise of authority in the workplace are two variables not usually included in stratification models. Recent work by Robinson and Kelley (1978) has documented the important explanatory effects of these variables, operationalized as empirical estimates of Marx and Dahrendorf's class measures, for increasing our understanding of the male-female income disparity. Wolf and Fligstein (1977), although not concerned specifically with income determination, also recognize the relevance of "autonomy" and "authority," variables similar conceptually to Robinson and Kelley's, to explaining sexual inequality of power in the workplace.

In the present analysis I employ Robinson and Kelley's measures, which are operationalized on the basis of respondents' answers to questions on the number of levels of supervisors above them and the number of levels of subordinates

below them (Robinson and Kelley, 1978, p. 7). Control over production is measured dichotomously, a code of one being assigned to those who respond that they have no supervisors (i.e. they have control over the means of production) and a zero to those who have supervisors (i.e. those who are subject to other's control).[5] Authority is a trichotomous, continuous variable scored as follows: persons with two or more levels of subordinates are assigned a code of one, those with one level of subordinates are given a score of .5, while those with no subordinates are assigned a zero.[6]

In addition to the four occupational characteristics other than prestige and status described above, I also consider a set of DOT occupational characteristics that are included in the NORC data. Three of the variables measure the complexity of the relationship of the individual's occupation to data, people, and things. The other two variables measure the general educational development and the specific vocational preparation associated with the respondent's occupation. Various researchers (McLaughlin, 1975; Lucas, 1977) have incorporated these characteristics into earnings models on the assumption that occupations exhibiting a more complex relation to data, people, and things and those requiring more vocational or educational training should have higher average salaries. The relationship to data, people, and things variables are metric and range from zero to eight, with low numbers representing no significant relationship and high numbers indicating the most complex.[7] The general educational development variable ranges from zero to six, or low to high education, respectively. Specific vocational preparation is metric and ranges from zero to eight, or low to high vocational training required. For simplicity in presentation, my analysis of these variables (hereafter referred to as DOT variables) throughout the present study is secondary to that of the job characteristics described earlier.

Procedures. Throughout the analysis, I employ standard multiple regression techniques, estimating separate models for males and females. Direct comparison of the metric regression coefficients gives an indication of the differing male-female rates of return to selected variables. I also focus on the extent to which adding structural factors to a human capital model including prestige or status increments the proportion of variance explained. Regression analysis can estimate the importance of various factors for explaining variation within the male and female populations, but it does not address the extent to which the substantial differences in the average incomes of men and women can be explained by their differing distributions on the independent variables. Therefore, I also employ a regression standardization procedure (Duncan, 1969, pp. 100-102) to derive an estimate of the extent to which the male-female income gap is due to the sex-segregated nature of the labor market, as operationalized by female concentration in occupations that are both low-paying and heavily female, and the less likelihood that they are in positions where they exercise control over the means of production or authority.

COMPARING THE INCOME ATTAINMENT PROCESSES OF EMPLOYED MEN AND WOMEN

Certain of the findings regarding the socioeconomic positions and status attainment processes of employed men and women in the United States are so consistent that they should probably be regarded as present-day social facts. For example, it is generally recognized that males and females achieve similar levels of education, although women are more likely than men to be concentrated in the center of the educational distribution than at either of the low or high extremes (Treiman and Terrell, 1975a; McLaughlin, 1975; McClendon, 1976). Treiman and Terrell (1975a, p. 178) and McClendon (1976, p. 60) also report that the process whereby men and women attain their education levels is very similar. These

same authors also report that men and women achieve nearly equivalent levels of occupational prestige and status and experience similar occupational attainment processes (at least when occupation is measured by either prestige or status). One thing that remains abundantly clear, however, is that despite similar achieved education and occupation levels and processes of attainment, women receive substantially lower economic returns than men for their investment in education and occupation (Suter and Miller, 1972, p. 971).[8] Similar results were obtained for samples of husbands and wives (Treiman and Terrell, 1975a, p. 195; Featherman and Hauser, 1976, p. 476). The lower female economic returns to investments in education and occupation are generally regarded as primary explanations of the male-female wage disparity. Although I agree that differences in rates of return represent an important component of the male-female income gap, I would argue that before obtaining valid estimates of how important these are researchers should explicitly take into account the nature of female employment and how it differs from the character of men's jobs. Otherwise, the sex-segregated nature of the labor market remains implicit, and hence its impact on earnings unassessed, within the differing rates of return to prestige (or status) experienced by men and women. By incorporating other job characteristics into a model of earnings, one can delineate further the various components responsible for the lower female income.

I begin my analysis of the income attainment processes of men and women by estimating basic models which include variables regularly incorporated into research of this type. The basic model I employ includes age; education; marital status; number of children ever born, less than six, and between six and seventeen; and hours worked. These variables are included because of their assumed relevance for the income attainment process and/or the earnings gap. Prestige and status-defined models, including either prestige or status in addition to the basic model

described above, are also estimated. Finally, I extend the prestige and status models to include additional characteristics of the job and call these improved models.

Distribution by Sex on Relevant Variables

Table 1 presents the means and standard deviations for the full model of income attainment (the correlations are presented in Appendix A). Men and women in the labor force were, on the average, approximately the same age, had attained a similar level of education, and were parents of a similar number of children. Women, however, were less likely to be single than men, although the difference was rather small. Working women were also less likely than employed men to have young children residing in the household, reflecting perhaps the fact that women with children less than six enter the labor force in smaller numbers than other women (Bowen and Finegan, 1969, p. 98). The average number of hours worked by women was substantially lower than that worked by men, reaffirming this variable's probable importance in explaining women's lesser earnings. As in previous analyses, men and women attained similar levels of prestige and status. What is perhaps more interesting is that men and women differed on each of the other occupational characteristics, sometimes substantially. This suggests that women, on the average, are concentrated in jobs that both pay less and have a greater proportion of females than the occupations in which men work. Moreover, women are much less likely than men to control the means of production or to exercise authority over others. Since, for each occupational characteristic, men predominate in the occupations associated with higher earnings, it is not surprising that this factor is important in explaining the income gap. Men and women were distributed somewhat differently on the DOT variables also, in that women hold jobs which, on the average, require

Table 1. Means and Standard Deviations for a Model of Income Attainment for White Men and Women; Currently Employed Persons 25 to 64, United States, 1974-1977[a]

Variables	Means		Standard Deviations	
	Men	Women	Men	Women
Age	42.1	41.9	11.3	11.4
Education	12.9	12.5	3.34	2.75
Marital status (never mar'd=1;ever mar'd=0)	.092	.080	.289	.273
No. children ever born	2.20	2.22	1.73	1.76
No. children < 6	.386	.218	.746	.543
No. children 6-17	.853	.906	1.20	1.22
Hours worked	44.5	35.9	11.8	11.9
Occupational characteristics				
Prestige	43.5	43.0	12.8	12.8
Status	43.1	44.5	23.9	21.7
Median income of male incumbents	8543	6975	2702	2484
Percent female	16.3	65.4	19.5	29.8
Control over production	.123	.067	.329	.250
Authority	.328	.195	.386	.321
DOT characteristics				
Complexity of rel. to data[c]	3.77	3.27	2.17	1.90
Complexity of rel. to people[c]	1.79	1.85	2.20	1.88
Complexity of rel. to things[c]	2.87	1.25	2.66	2.07
General educational development	3.89	3.69	.990	.881
Specific vocation preparation	5.87	4.99	1.65	1.57
Income	15310	6992	9392	5189
N[b]	965	672		

[a]For details on scoring of variable, see text.

[b]Missing data deleted pairwise, lowest number of cases reported.

[c]Larger numbers indicate greater complexity.

somewhat less general educational development and vocational preparation. Finally, as expected, women earned substantially less than men. In the present sample, women's income averaged approximately 46 percent that of men.

Prestige and Status-Defined Models of Income Attainment

In the previous section, I presented data which suggest that women's prestige and status levels are very similar to those of men. Even so, they evidently earn only 46 percent as much as their male counterparts in the workplace. I have claimed that the distribution of males and females into occupations differing in character is an important explanation for this income gap. The sex-segregated nature of the labor market may be a factor in concentrating women in jobs which pay less relative to the jobs in which men work, in employment which is heavily female, and in occupations where they exercise little responsibility. As a basis for evaluating whether what I have suggested is supported by the data, I first present results from prestige and status-defined models of earnings. This section thus replicates previous analyses using more recent data.[9]

Table 2 presents the regression coefficients for the prestige and status-defined models of earnings (equations 1,2,5, and 6). The results of the present analysis closely approximate those obtained earlier on married men and women (Treiman and Terrell, 1975a; Featherman and Hauser, 1976).[10] Since the findings of the prestige and status models are so similar, I will refer only to the former. Any generalizations I make, however, apply equally to the status model of earnings. An especially noteworthy finding is that women received a substantially lower return for their investments in education and prestige. For both these variables women received approximately 60 percent the income return men enjoyed. This figure, it should be noted, is for men and women who worked the same number of hours per week and thus cannot be explained by a lesser amount of time spent working by females. As the standardized coefficients show, hours worked dominates

Table 2. Regression Coefficients for Models of Income Attainment Including Occupational Characteristics; Currently Employed White Men and Women, 25-64, United States 1974-1977 (Standard errors in parentheses)[a]

DEPENDENT VARIABLE	INDEPENDENT VARIABLES														
								Occupational characteristics							
	Age	Education	Marital status	No. children ever born	No. children < 6	No. children 6-17	Hours worked	Prestige	Status	Control over production	Authority	Median income	Percent female	Intercept	R^2
Unstandardized Coefficients															
Prestige model															
1a. Male income	111 (30.0)	761 (103)	-2123 (1007)	-116 (214)	-843 (425)	745 (270)	128 (22.6)	141 (26.1)						-12444	.297[b]
1b. Female income	64.7 (18.8)	463 (77.7)	194 (659)	-193 (131)	-146 (350)	32.6 (177)	155 (14.1)	84.1 (16.1)						-10300	.330[b]
Status model															
2a. Male income	109 (29.8)	698 (103)	-2222 (1001)	625 (213)	-767 (422)	732 (269)	128 (22.4)	---	88.2 (14.0)					-9242	.265[b]
2b. Female income	66.8 (18.8)	475 (77.7)	372 (660)	-168 (131)	-78.8 (351)	6.82 (178)	159 (14.0)	---	47.5 (9.55)					-9230	.337[b]
Improvement over prestige model															
3a. Male income	93.0 (28.2)	708 (97.7)	-1331 (947)	626 (200)	-884 (398)	452 (255)	102 (21.4)	-22.5 (33.0)	---	3409 (823)	123 (730)	.931 (.146)	-29.5 (13.9)	-11499	.352[c]
3b. Female income	57.8 (18.3)	483 (75.4)	673 (644)	-140 (127)	-163 (340)	48.7 (172)	139 (13.9)	9.67 (22.1)	---	-156 (692)	1219 (552)	.498 (.118)	-6.61 (7.01)	-9923	.374[c]
Improvement over status model															
4a. Male income	93.1 (28.2)	713 (98.0)	-1300 (947)	626 (200)	-896 (398)	450 (255)	102 (21.3)	---	-16.8 (20.9)	3360 (819)	3177 (731)	.546 (.169)	-28.6 (14.3)	-12169	.352[c]
4b. Female income	58.0 (18.3)	490 (75.3)	699 (641)	-138 (127)	-163 (341)	39.6 (172)	140 (13.9)	---	2.86 (12.3)	-153 (692)	1233 (551)	.517 (.112)	-5.79 (6.68)	-9926	.374[c]
Standardized Coefficients															
Prestige model															
5a. Male income	.133	.271	-.063	.113	-.066[d]	.095	.160	.192							
5b. Female income	.142	.245	.010[d]	-.065[d]	-.015[d]	.003[d]	.356	.268							
Status model															
6a. Male income	.132	.248	-.068	.115	-.061	.094	.160	---	.225						
6b. Female income	.146	.252	.020[d]	-.037[d]	-.008[d]	.002[d]	.364	---	.199						
Improvement over prestige model															
7a. Male income	.112	.252	-.041[d]	.115	-.070	.058[d]	.128	-.031[d]	---	.119	.129	.268	-.061		
7b. Female income	.127	.256	.035[d]	-.047[d]	-.017[d]	.010[d]	.320	.024[d]	---	-.008[d]	.075	.238	-.038[d]		
Improvement over status model															
8a. Male income	.112	.254	-.040[d]	.115	-.071	.058[d]	.128	---	-.043[d]	.118	.131	.279	-.058[d]		
8b. Female income	.127	.259	.037[d]	-.047[d]	-.017[d]	.009[d]	.320	---	.012[d]	-.007[d]	.076	.248	-.033[d]		

[a] See text for description of variables.

[b] R^2 increment over basic model (age; education; marital status; number of children ever born, less than 6, 6-17; hours worked) significant at .01 level.

[c] R^2 increment over prestige or status model significant at .01 level.

[d] Coefficient less than twice its standard error.

the earnings equation for women but not for men, reflecting women's greater likelihood of working part-time. As was true for the wives in Treiman and Terrell's (1975a) sample, family composition variables were insignificant in determining earnings. Unlike their findings, marital status also proved nonsignificant in determining women's earnings. Although these variables may affect a woman's decision to enter the labor force or the number of hours she contributes to work outside the home, they evidently do not affect a working women's earnings, net of hours worked.

The Effects of Job Characteristics on Earnings: Extensions of the Basic Model

I have claimed that an important explanation for why women earn less than men is that they are adversely affected by the sex-segregated character of the labor market. Since I wish to assess the relevance of job characteristics on earnings, a convenient point to begin is by estimating the relative improvement in ability to predict earnings by incorporating various dimensions of occupation other than prestige or status into an income equation. Table 3 provides a summary of such an analysis for men and women. Panel A presents the percentage of variance in income explained by the basic variables, including age, education, marital status, number and ages of children, and number of hours worked. Women's earnings are more fully determined by these variables than is the income of men. Panel B represents the increment in R^2 over the basic model associated with each dimension of occupation. With the exception of control over the means of production for women, each of the occupational characteristics significantly increments the percentage of variance in earnings that can be explained. Thus, like prestige and status, knowledge of other aspects of occupation helps to explain why some individuals earn more than others. The results in Panel C permit an assessment of whether as a whole the set of occupational characteristics I specify significantly increments the proportion of variance explained in

Table 3. Effects of Occupational Characteristics on Personal Income; Currently Employed White Men and Women, 25-64, United States, 1974-1977[a]

Panel A. Percentage of variance explained (R^2)	Men	Women
1. Basic model: includes age; education; marital status; number of children ever born, less than 6 and between 6 and 17; number of hours worked	23.5%	30.2%
Panel B. Additional percentage of variance explained by occupational characteristics[b]		
2. Prestige	2.3*	2.8*
3. Status	3.0*	2.5*
4. Control over production	3.2*	.3
5. Authority	5.3*	1.3*
6. Median income	7.3*	6.7*
7. Percent female	1.9*	2.3*
Panel C. Percentage of variance explained by improved income models		
8. Improved prestige model (includes prestige, control over production, authority, median income, and percent female)	35.2**	37.4**
9. Improved status model (includes status, control over production, authority, median income, and percent female)	35.2**	37.4**

[a] See text for description of variables.

[b] In lines 2 through 7, each occupational characteristic was added in separately to determine whether increment in R^2 over basic model was significant.

* Increment in R^2 over basic model significant at .01 level.

** Increment in R^2 for adding all occupational characteristics (control over production, authority, median income, and percent female) to a prestige or status model significant at .01 level.

income, net of prestige or status. The evidence is that they do--incorporating control over the means of production, authority, median income, and percent female into a prestige or status model significantly improves our ability to predict the earnings of men and women by approximately nine and four percent, respectively. As a result, one's ability to predict men's and women's income is more nearly similar in the improved than in the basic models. These findings clearly suggest the importance of including such job characteristics in any model of income attainment, especially in a comparison involving men and women.

In comparing the process of income attainment for men and women, I refer specifically to the analysis employing prestige. As before, any generalization I make applies equally well to the status equation. Table 2 (equations 3, 4, 7, and 8) presents the regression coefficients for the improved models. In these models we still find women experiencing a substantially lower economic return than men for their investment in education, even accounting for the different kinds of employment in which they predominate. They were also less able than men to capitalize monetarily on being in highly paid jobs (specifically, in jobs that pay men well) or in occupations where they exercise authority. The former result is rather discouraging since it suggests that, net of other factors, the more highly paid the job the less women earn relative to their male counterparts. As Robinson and Kelley (1978, p. 13) suggest, a possible explanation for women's lesser ability to capitalize on positions of authority is that men's supervisory positions tend to be at a higher level in the hierarchy (managers and administrators) than women's (clerical supervisors). The metric coefficients for control over the means of production for men and women are very similar to those reported by Robinson and Kelley (1978, p. 12). Evidently, men gain an additional $3409 in income for being employers, while women, if anything, lose income, if they are one of the few women who venture into this

kind of employment. Finally, being in a heavily female occupation may negatively affect men's income more than it affects women's. Net of other factors, women lost approximately $7 for each one percent increase in the percent female employed while men lost $30. Looked at the other way around, however, this finding suggests that women gain less than men for every unit decrease in percent female. Once all these job characteristics are incorporated into the model, the impact of prestige on earnings is insignificant for both men and women, indicating that prestige is a proxy for other occupational characteristics that more directly affect income. As was true in the basic prestige model, hours worked is still the most important variable in explaining income variation among women, although not among men. Furthermore, the effects of marital status and the number and ages of children variables are minimal, if not insignificant.

Although not presented in Table 2, the five DOT variables were also added to each of the improved prestige and status equations. I found that they did not significantly increment the percentage of explained variance in income. Hence, in the interests of simplicity and parsimony, I do not include a discussion of the resultant models.[11] Evidently, the information conveyed via the DOT characteristics duplicates that already provided by the set of occupational characteristics I specified.

The Male-Female Earnings Gap

Up to this point, I have compared the income attainment processes of men and women. Such analyses can inform us as to whether hypothesized variables are important for differentiating among women or among men, but they give no estimate of the extent to which sex differences in achieved income are due to gender differences in distribution on these variables. Since I claim that men and women are concentrated in occupations the characteristics of which relate differently to income, a decomposition of the earnings differential between men and women is in order.

The extent to which male-female income differences are due to hypothesized factors may be assessed by the application of a regression standardization procedure described by Duncan (1969, pp. 100-102). I applied the procedure by substituting the (generally) higher male means on the factors included as independent variables in the analysis into successive female regression equations of income on a sequentially-ordered set of independent variables. To the extent that females differ from males on various hypothesized factors, the procedure delineates and statistically controls for that part of the earnings gap due to this dissimilarity. Thus one is asking, for example, how much women would earn if they had the same types of occupations as men, that is, if they were employed in jobs which on the average paid as well, had the same proportion of females, and the same level of responsibility, as the jobs done by men, but which continued to return the same income to women as at present. As we shall see, the differential payoff, and not differences in occupational composition, accounts for the bulk of the income difference.

Table 4 presents the results of the decomposition of the gap in mean earnings between men and women. These findings are presented in terms of "female earnings as a percentage of male's," assuming male earnings are 100%. Panel A shows a stepwise breakdown of the improvement in adjusted female earnings provided by the basic variables. With the exception of hours worked, which improves relative female earnings by a substantial nine percent, distributional differences on the basic variables account for little of the male-female income gap. Including these variables increases female income from 46 to 56 percent that of men, which mainly reflects the differential in hours worked and the strong impact of hours worked on income for women. Panel B presents similar results for the improved prestige and status models. Given the similar status and prestige levels achieved by men and women, it is not surprising that introducing either of these occupational components has virtually

Table 4. Decomposition of Difference in Mean Earnings of Currently Employed White Men and Women, 25-64; United States, 1974-1977

Panel A. Basic model

	Female earnings as a percentage of male earnings (1)	Percentage due to sex differences in: Age (2)	Education (3)	Marital status (4)	Number and ages of children (5)	Hours worked (6)	Adjusted female earnings percentage (sum of 1-6) (7)
1. Basic model	45.7%	0.0	1.6	0.1	-0.5	9.4	56.3%

Panel B. Improved models

	Female earnings as a percentage of male earnings controlling for variables in basic model (1)	Percentage due to sex difference in: Prestige (2)	Status (3)	Occupation characteristics (includes control over production, authority, median income, and percent female) (4)	Adjusted female earnings percentage (sum of 1-4) (5)	Residual percentage left unexplained (100%-adjusted female earnings percentage) (6)
2. Improved prestige model	56.3%	-0.7	---	7.1	62.7%	37.3%
3. Improved status model	56.3%	---	-1.2	7.5	62.6%	37.4%

no effect on the income gap. However, incorporating job characteristics, net of prestige or status, statistically increases female earnings, as a percentage of men's, by over seven percent. As a result the adjusted female earnings percentage is approximately 63 percent, leaving a 37 percent residual.

Although the DOT variables did not significantly increase our ability to predict the earnings of men or women, net of job characteristics, that does not necessarily imply that they are unimportant in explaining the income disparity between men and women. Therefore, to test their relevance I included the DOT variables in a decomposition of earnings and assessed their effects, net of occupational characteristics. The addition of the five DOT variables increase the adjusted female earnings by only one percent, hardly noteworthy. Net of the other job characteristics delineated, the DOT variables were not important and are therefore, not included in the tables.

Job Characteristics and Experience

These results suggest that women's income, relative to men's, would be substantially improved if their occupational characteristics were more like men's. As it is, their concentration in jobs which are low-paying, heavily female, and low in responsibility adversely affects their earnings. Moreover, even if women reach these higher level jobs, the income return they enjoy is much lower than that of men, suggesting that they are less able to capitalize monetarily on incumbency in these positions. Although these results are quite strong, it is unfortunate that the present data do not include an experience variable. My argument would be stronger if I could show that differential occupational distribution adversely affects female earnings, net of a set of variables including the human capital factor of experience.

It might be argued that female concentration in low-level employment is actually a direct result of women's intermittent labor force participation and

therefore not a characteristic of the occupational structure which inhibits female economic advancement. If this were true, once experience is controlled, the effect of differential distribution of job characteristics on earnings should disappear. In order to test this possibility, I estimated the earnings model for never married women, i.e., women for whom intermittent attachment patterns are a rarity. Treiman and Terrell (1975a, p. 187) found that never married women had worked 92 percent of the years since completing their education, compared with 56 percent for ever married women (these figures are similar to those estimated by Polachek, 1975, p. 95).[12] The intermittent participation argument is thus not relevant to never married women who, like men, have spent the great majority of their post-school lives in the labor force.

In the NORC dataset there are only 60 currently employed white women who are classified as never married. Although the sample size is small, the results generated can be viewed as a preliminary estimate of the extent to which the job characteristics I delineate may be merely proxies for experience. If occupational characteristics are important for a group of women who, like men, have a continuous attachment to the labor force, these variables cannot be dismissed as mere proxies for labor force experience.

Never married women represent a rather special group, consisting for the most part of highly educated career or professional women for whom family responsibilities would be inhibitors to advancement. One might expect that, if any women are equally integrated into the occupational structure, it would be these. The present sample of never married females bears out our notions regarding single working women—they are much better educated than the average man or woman, attaining a full fourteen years of education. What is particularly interesting is that single women attained, on the average, prestige and status levels of 49 and 53, respectively, a full five to ten points higher than the typical working

man or woman. Despite this higher prestige and status attainment, single women ranked lower than men on each of the other primary dimensions of occupations delineated.[13] Although they worked at jobs with higher salaries, on the average, than the full sample of women, they still remained concentrated in employment which pays less than the jobs in which men predominated. Additionally, the jobs in which they worked were more heavily female than the average for all women. Finally, they were still much less likely than men to have positions of authority or control over production. Not surprisingly, decomposing the mean earnings of men and women into component parts reveals that a significant portion of the income gap is due to structural factors as I define them. The unadjusted single female earnings, as a percentage of men's, was 57 percent. The additional factors in the improved prestige model increased the single female earnings percentage to 78 percent, eight percentage points of which can be attributed to the primary set of job characteristics. These findings regarding the importance of job characteristics for determining earnings cannot be explained by the fact that the sample might consist of young women who are in the workforce prior to marriage, a group which might be expected to be in low-level employment. Although their average age was somewhat less than that of all women, a mean age of thirty-six suggests that a goodly portion of these women had been in the labor force for some time.

CONCLUSION

The present analysis suggests that the nature or character of a worker's job is an important structural factor which should be incorporated into any model of earnings, especially when comparing the income attainment processes of men and women. Because males and females are distributed so differently across occupations, one might expect this factor to be relevant to an explanation of the

income disparity between the sexes, net of traditional human capital factors. This appears to be the case when job characteristics are operationalized as in the present study. Variables designed to measure differences in the nature of the work that women do as opposed to that performed by men, were incorporated into the model and found to statistically increase women's earnings, as a percentage of men's, by over seven percent. A similar improvement occurred when just single women's earnings were adjusted to take account of their concentration in low-level (but high status) employment, providing evidence that the included variables are not merely proxies for work experience. These results thus suggest that women earn less than men in part because they are concentrated in jobs which pay poorly and are heavily female, and because they seldom control the means of production or exercise authority. Furthermore, even women who do reach higher-level jobs are apparently less able than men to capitalize monetarily on their incumbency in these positions, as documented by their lower economic returns to various job characteristics. These gender-based inequalities exist despite similar attained prestige and status levels. These traditional status attainment variables may be income-relevant in determining earnings among women or among men but they provide no assessment of the inequity in the occupational structure which results in women's being paid less than men in the workplace. Men, also, feel the negative effects of the sex-segregated occupational structure. My results indicate that men are evidently more adversely affected monetarily by incumbency in "women's jobs" than are women. However, looked at the other way around, men gain much more than women for incumbency in "men's jobs."

The present analysis has sought to make explicit the sex-segregated nature of the labor market in order to assess its impact on the earnings differential between men and women. Previous research in this area has relied, for the most

part, on prestige or status-defined models of earnings, which I claim allow the impact of differences in other occupational characteristics to remain unassessed. Additionally, I suggest that earlier work generally failed to incorporate relevant structural factors into earnings models along with the traditional human capital variables. The job characteristic variables I employ in this paper have improved upon our ability to predict women's and especially men's earnings and have permitted a better understanding of the differences in the process of income attainment which lead to a lower female income return to occupation. Given these results, serious consideration should be paid to enlarging traditional models of earnings to incorporate relevant structural characteristics such as those I propose here.

Appendix A. Correlation Matrix of All Variables in Earnings Model for Men (above the diagonal) and Women (below the diagonal); White Currently Employed Persons, 25-64, United States, 1974-1977[a]

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
1. Age		-.22	-.18	.31	-.40	-.01	-.02	-.02	-.03	-.01	-.06	.08	.02	.04	-.04	.06	.00	.05	.14
2. Education	-.24		.12	-.13	.10	-.04	.03	.61	.62	.47	.22	.08	.20	.47	.52	-.36	.61	.42	.33
3. Marital status (never married=1;married=0)	-.15	.17		-.39	-.16	-.20	-.12	.02	.04	-.04	.13	-.06	-.05	.03	.04	-.09	.02	-.03	-.13
4. No. children ever born	.25	-.30	-.35		.16	.52	.08	-.05	-.06	.01	-.11	.08	.05	-.03	-.08	.09	-.04	.00	.19
5. No. children < 6	-.36	.02	-.10	.08		-.01	.07	.04	.01	.04	-.04	-.02	.01	-.03	.02	-.02	.02	-.01	-.05
6. No. children 6-17	-.19	-.04	-.21	.50	-.04		.09	.00	-.00	.07	-.08	.09	.06	.01	-.02	.05	.03	.05	.17
7. Hours worked	.07	-.01	.06	-.04	-.07	-.09		.08	.07	.08	-.05	.12	.14	.08	.12	-.07	.10	.06	.20
8. Prestige	-.07	.58	.14	-.22	-.03	-.06	.11		.85	.74	.18	.14	.26	.73	.63	-.31	.89	.74	.36
9. Status	-.09	.59	.11	-.24	-.06	-.03	.07	.86		.80	.19	.11	.30	.75	.66	-.49	.85	.63	.37
10. Median income of male incumbents	-.00	.37	.04	-.18	-.02	-.09	.19	.69	.68		-.09	.12	.33	.58	.49	-.27	.70	.60	.44
11. Percent female	-.04	.01	.02	.01	.06	.03	-.09	-.03	-.09	-.48		-.10	-.09	.03	.28	-.42	.09	-.13	-.09
12. Control over production	.07	-.01	-.06	-.01	.01	-.03	.08	.07	.04	.13	-.10		.39	.19	.13	-.05	.16	.21	.27
13. Authority	.08	.09	-.05	-.02	-.04	.00	.12	.21	.17	.22	-.05	.36		.33	.26	-.16	.33	.33	.34
14. Complexity of relationship to data[b]	-.07	.53	.08	-.19	-.02	-.06	.04	.78	.83	.69	-.20	.17	.26		.53	-.20	.86	.83	34
15. Complexity of relationship to people[b]	-.04	.60	.11	-.15	-.04	-.02	-.03	.62	.64	.44	-.10	.02	.04	.39		-.66	.69	.48	.15
16. Complexity of relationship to things[b]	.00	-.33	-.05	.10	.05	.03	-.01	-.35	-.46	-.13	-.13	.04	-.08	-.33	-.42		-.27	.05	-.11
17. General educational development	-.08	.62	.12	-.22	-.03	-.05	.07	.88	.84	.70	-.11	.12	.21	.88	.73	-.32		.86	.40
18. Specific vocational preparation	-.03	.48	.07	-.17	-.01	-.07	.12	.81	.71	.71	-.17	.17	.29	.82	.57	-.11	.88		.35
19. Income	.08	.35	.10	-.16	-.10	-.11	.39	.40	.38	.45	-.19	.09	.20	.36	.30	-.08	.41	.39	

[a]Means and standard deviations presented in Table 1. N=965 men and 672 women.

[b]Larger numbers indicate greater complexity.

FOOTNOTES

1. Five Dictionary of Occupational Titles (DOT) variables were also included in the data: complexity of relationship to data, complexity of relationship to people, complexity of relationship to things, general educational development, and specific vocational training. I use these variables as secondary to the four primary variables. Refer to the Data and Methods section for additional explanation.

2. Missing data were deleted pairwise; the smallest number of cases is reported.

3. This restriction is more serious for the female population since a selectivity bias may be inherent in restricting the sample to only working women. Knowledge of this factor should be kept in mind in interpreting any differences between the sexes. However, since working women tend to be more highly educated than non-employed women, the existing income gap may actually be an underestimate of the disparity which would exist if females in a lower wage-bargaining position were to enter the labor force.

4. The open-ended upper category was estimated at $37,692 by fitting a Pareto curve to the data (U.S. Bureau of the Census, 1966, p. 215).

5. The small number of individuals who control the means of production but have no subordinates (i.e. Marx's petite bourgeosie according to Robinson and Kelley, 1978) were grouped with those who do not have control and assigned a code of zero. Therefore, those persons who are scored one on this variable are employers and executive directors.

6. Robinson and Kelley (1978) found that this trichotomous measure of authority was a better predictor of income than Dahrendorf's dichotomous version which only distinguishes those who exercise authority from those who do not. This suggests that <u>extent</u> of authority is also important.

7. This scoring reverses that in the original publication (U.S. Department of Labor, 1965). It should be noted that there has been some criticism of sex bias in the scores on these dimensions in the sense that women's occupations are often scored as exhibiting a less complex relationship to data, people, and things than is true in reality (Witt and Haherny, 1975).

8. Contrary to the results obtained by Treiman and Terrell (1975a) and McClendon (1976), Suter and Miller did find that men had attained somewhat higher levels of occupational status than their female counterparts in the workforce.

9. Suter and Miller (1972) employ the 1967 Parnes data in their analysis, as do Treiman and Terrell (1975a) and McLaughlin (1975). More recent data were used by McClendon (1976), who employed the 1972 through 1974 NORC General Social Surveys, and Featherman and Hauser (1976), who used the 1973 replicate of the Occupational Changes in a Generation data (OCG). The current data, of course, are from the 1974, 1976, and 1977 General Social Surveys.

10. All comparisons with earlier work should be regarded with caution since different variables and measurement were applied.

11. Another reason for not including the five DOT variables was that some of them were highly inter-correlated which might have raised questions regarding the stability of the standardized coefficients.

12. Treiman and Terrell (1975a) also report that experience was insignificant in determining the earnings of never married women.

13. The means and standard deviations for the 60 never married white women were:

Variable	Means	Standard deviations
Age	36.0	12.8
Education	14.1	3.07
Number of children ever born	.14	.43
No. children less than six	.03	.18
No. children 6 - 17	.05	.22
Hours worked	38.4	10.6
Prestige	49.1	12.4
Status	52.5	22.1
Median income of male incumbents	7316	2722
Percent female	67.1	28.5
Control over production	.018	.136
Authority	.136	.280

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